

CHRYSOPS STONEI, A NEW TABANID FROM JAPAN
(DIPTERA: TABANIDAE)

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ABSTRACT—*Chrysops stonei* is described from Hokkaido, Japan. It is related to *C. mlkosiewiczzi* and *C. vanderwulpi*. The status of *C. vanderwulpi* is discussed.

It is a pleasure to dedicate a new tabanid to Dr. Alan Stone who has done so much to advance our knowledge of this family.

Chrysops stonei Pechuman, new species

Holotype (♀): Length: 10 mm.

Head: Frons essentially parallel sided. First antennal segment yellow, 2nd and basal portion of 3rd yellow brown, annuli dark brown, nearly black; first 2 segments with black hairs. Frontal callus dark brown, nearly black, large, oval, narrowly separated from eyes. Facial and frontal pollen yellow except around and between ocelli where it is dark brown; pollinose triangular area on frontoclypeus extends from beneath antennae nearly to level of frontoclypeal pits; balance of frontoclypeus shining dark yellow, somewhat darker in area of frontoclypeal pits. Cheeks with very small shining black spot below. First segment of palpi brownish, 2nd dark yellow with short black hair and much longer yellow hairs. Proboscis black.

Thorax: Dorsum yellow pollinose and yellow haired with 3 dark brown stripes which run entire length, center stripe $\frac{1}{2}$ as wide as sublateral stripes; scutellum entirely yellow pollinose and yellow haired. Pleurae yellow pollinose and yellow haired with dark integument visible in thinly pollinose areas. Stem of halteres yellow, knob brown. Fore coxae, middle and hind femora yellow and yellow haired; middle and hind coxae fuscous; fore femora yellow with apical $\frac{1}{4}$ dark brown, mostly dark haired; fore tibiae yellow at base with apical $\frac{3}{4}$ dark brown, mostly dark haired; middle and hind tibiae dark yellow, mostly dark haired; all tarsi dark brown except metatarsi of middle and hind legs which are yellow brown. Wing as figured; dark pattern pale and crossband much reduced when compared with most related species; center of discal cell, both basal cells, 2nd submarginal, 4th and 5th posterior and anal cells with little evidence of infuscation.

Abdomen: First tergum completely yellow; 2nd through 5th terga yellow with 4 narrow black markings on each segment which give a quadristriate appearance to abdomen; black markings on the 2nd tergum do not reach either margin and sublateral spots are less distinct than submedian spots; markings of 3rd through 4th terga reach anterior margin but do not quite reach posterior margin; markings of 5th tergum all reach both margins of segment; 6th tergum black, yellowish laterally. Venter, through 4th sternum, yellow with small dark spot

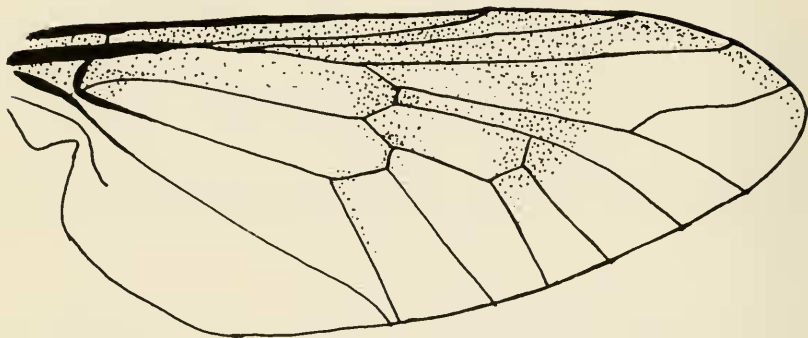


Fig. 1, wing of *Chrysops stonei*.

near center of 2nd sternum; 5th sternum yellow with darker shading near posterior border; remaining sterna dark brown with some yellowish shadings.

Holotype: Shirikishinai, Kamedagun, Hokkaido, Japan, 20 August 1964 (M. Munakata).

Paratypes: 4 ♀♀, same data as holotype; 2 ♀♀, same locality as holotype, 25 August 1971, 20 August 1973 (A. Taguchi); 1 ♀ Ikusagawa, Ohnuma-Park, Hokkaido, 27 July 1961 (M. Munakata). One ♀ with badly damaged abdomen is not included in the paratype series but head and wing characters match the type of *stonei*. It is labeled Mimasaka, Japan, July 1912 (J. C. Thompson). If this locality refers to the former province of Mimasaka on Honshu, it is a considerable extension of range.

The holotype is temporarily retained in my collection. Paratypes are being placed in the Cornell University Insect Collection and are being sent to Dr. Meiyō Munakata, Hokkaido University of Education, Hakodate and to Dr. N. G. Olsufjev, Moscow.

Variations. The series varies in length from 8 to 11 mm, with a median length of 9.6 mm. Leg color and wing pattern show almost no variation. The abdominal pattern is quite consistent but in some specimens the submedian black spots reach the posterior margin of the 2nd tergum and in one specimen the sublateral markings are reduced on terga 3 through 5 and are absent on the 2nd tergum. Three paratypes show traces of dark spots on the 1st tergum but none have the dark spot under the scutellum found in *vanderwulpi*. One specimen lacks the black spot on the 2nd sternum. The ratio of length of scape to flagellum varies from 1 to 2.24 to 1 to 2.58.

The discovery of a new *Chrysops* in an area as heavily collected as Hokkaido is surprising and I was at first inclined to regard these specimens as a local variant of *C. vanderwulpi* Kröber. However, specimens of *vanderwulpi* from Hokkaido and from mainland Asia

supplied by Dr. Munakata and Dr. Olsufjev respectively showed a number of consistent differences. In *vanderwulpi* the frons is somewhat widened below, the frontal callus is yellow to brown or less commonly black with a brown center, the pollinosity between and around the ocelli is yellow like the rest of the frons, not brown as in *stonei*, the fore tibiae are entirely yellow or darkened only near the apex, even abnormally pale *vanderwulpi* show dark spots on the 1st abdominal tergum which generally meet beneath the scutellum whereas in *stonei* this tergum has only two small dots or is completely yellow and most *vanderwulpi* have distinct dark spots on the 2nd through 4th abdominal sterna. In most *vanderwulpi* the median frontoclypeal pollen is in the form of a stripe, parallel sided below its origin and acutely pointed below, usually extending below the level of the frontoclypeal pits, whereas in *stonei* the pollen is in the form of an equilateral triangle barely or not reaching the level of the pits. The most obvious differentiating character from *vanderwulpi* is the reduced and paler wing pattern with almost no indication of the projection from the crossband in the first submarginal cell characteristic of *vanderwulpi*.

The wing pattern of *stonei* has a superficial resemblance to *Chrysops oxianus* Pleske, 1910, but this is a grayish species with a very small frontal callus and extensive pollinose frontoclypeal stripe. From *Chrysops mlokosiewiczzi* Bigot, a species not known from Japan, it is separated by the reduced wing markings, different pattern of markings on the 2nd abdominal tergum, lack of spot under the scutellum and the scape shorter in proportion to the flagellum; the type series of *stonei* has an average ratio of scape to flagellum of 1 to 2.45 and in a series of *mlokosiewiczzi* from various localities the average ratio is 1 to 1.87.

Some comment on the status of *Chrysops vanderwulpi* is, perhaps, appropriate at this time. Kröber (1929) proposed *vanderwulpi* as a new name for *Chrysops striatus* van der Wulp, 1885, which is pre-occupied by *Chrysops striatus* Osten Sacken, 1875. He treated it as a variety of *mlokosiewiczzi* Bigot, 1880. Most subsequent workers have treated *vanderwulpi* as a full species and I agree with this status. Some workers have placed *striatus* van der Wulp as a synonym of *mlokosiewiczzi*, which if true, would also place *vanderwulpi* Kröber as a synonym. Stone (*in* Delfinado and Hardy, 1975) follows this line of reasoning which in effect leaves the species presently called *vanderwulpi* without a name.

Through the kindness of Dr. A. Diakonoff and Dr. P. J. van Helsing of the Rijksmuseum van Natuurlijke Historie, Leiden, Netherlands, I have been able to study the holotype of *Chrysops striatus* van der Wulp from Amoy, China. The type is in good condition. It is not *mlokosiewiczzi* but the species currently known as *vanderwulpi*

Kröber. It is separated at once from *mlokosiewiczzi* by the projection from the crossband in the first submarginal cell and the relative proportions of the scape, pedicel and flagellum which have a ratio of 1: 0.83: 2.3. Therefore, Kröber's replacement name *Chrysops vanderwulpi* for *C. striatus* van der Wulp is valid and both names should be removed from synonymy under *C. mlokosiewiczzi*.

REFERENCES

- Kröber, O. 1929. Indo-australische Chrysopini. Zool. Jb. 56:463-528.
Stone, A. 1975. Family Tabanidae. In Delfinado and Hardy, A catalog of the Diptera of the oriental region, Vol. II, pp. 41-48. Univ. Press of Hawaii, Honolulu.